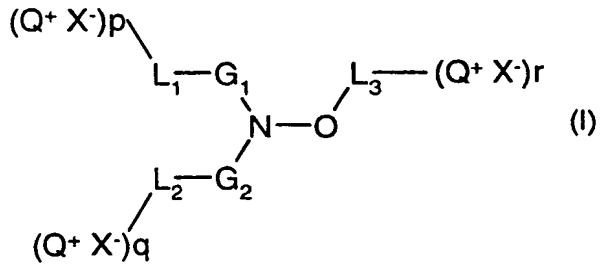
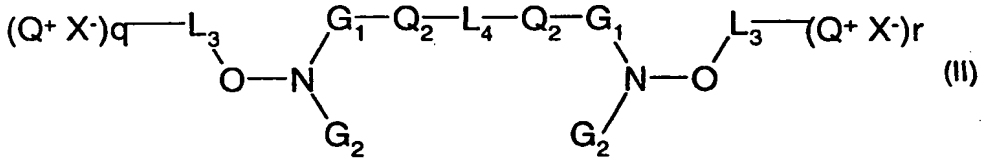
Claims

1. A compound of formula (I) or (II)



(I)



(II)

wherein

G_1 and G_2 independently represent a tertiary carbon atom to which unsubstituted C_1-C_{18}alkyl or phenyl or with CN, COC_1-C_{18}alkyl, CO-phenyl, $COOC_1$-C_{18}alkyl, OC_1-C_{18}alkyl, NO_2, NHC_1-C_{18}alkyl or $N(C_1$-$C_{18})_2$alkyl substituted alkyl or phenyl groups are bonded; or one of

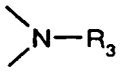
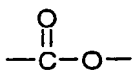
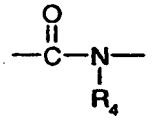
G_1 and G_2 is a secondary carbon atom to which a group $-P(O)(OR_{22})_2$ and the other is as defined above; or

G_1 and G_2 together with the nitrogen atom to which they are bonded form a 5 to 8 membered heterocyclic ring or a polycyclic or spirocyclic 5 to 20 membered heterocyclic ring system, which is substituted with 4 C_1-C_4alkyl groups or 2 C_5-C_{12} spirocycloalkyl groups in ortho position to the nitrogen atom and which may be further substituted with one or more C_1-C_{18}alkyl, C_1-C_{18}alkoxy or =O groups; and

which may be interrupted by a further oxygen or nitrogen atom;

with the proviso that at least one of the 4 C_1-C_4alkyl groups in ortho position to the nitrogen atom is higher alkyl than methyl;

L_1, L_2 and L_4 is a linking group selected from the group consisting of

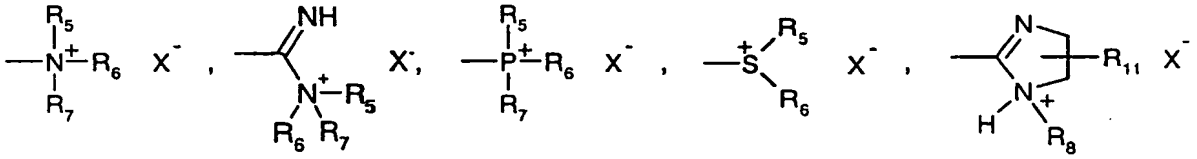
a direct bond, R_1-Y or R_2-C(O)-Y- where Y is attached to G_1 and/or G_2; C_1-C_{25}alkylene, C_2-C_{25}alkylene interrupted by -O-, -S-, -SO-, -SO_2-,  ,  ,  ,  , phenylene and C_5-C_8cycloalkylene;

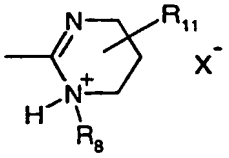
Y is O, or NR_9

L_3 is a group containing at least one carbon atom and is such that the radical $\bullet L_3$-(Q^+X^-) derived from the group is able to initiate polymerization of ethylenically unsaturated monomers;

Q_2 is a direct bond, O, NR_5 or NR_5R_6;

Q^+ is a cationic group selected from the group consisting of



and 

wherein

R_1 is C_1-C_{18}alkylene,

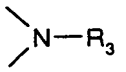
R_2 is a direct bond or C_1-C_{18}alkylene,

R_3 is hydrogen or C_1-C_{18}alkyl,

R_4 is hydrogen or C_1-C_{18}alkyl,

R_5, R_6 and R_7 are each independently of the others hydrogen, C_1-C_{18}alkyl, C_3-C_{12}cycloalkyl, phenyl or C_7-C_9phenylalkyl or C_6-C_{10}heteroaryl which all may be unsubstituted or substituted by halogen, OH, NO_2, CN, C_1-C_4alkoxy, or

R_5, R_6 and R_7 together with the nitrogen or phosphor atom to which they are bonded form a 3-12 membered monocyclic or polycyclic ring which may contain further heteroatoms;

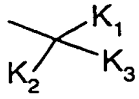
R_8 is hydrogen or C_1-C_{25}alkyl, C_3-C_{25}alkyl interrupted by oxygen, sulfur or by  ; or C_2-C_{24}alkenyl,

R_9 is hydrogen, C_1-C_{18}alkyl, C_3-C_{18}alkenyl, C_3-C_{18}alkinyl, phenyl, C_7-C_9phenylalkyl, which all may be unsubstituted or substituted by one or more hydroxy, halogen or C_1-C_4alkoxy groups;

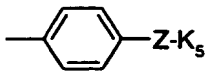
R_{22} is C_1-C_{18}alkyl;

X^- is the anion of a C_1-C_{18}carboxylic acid which may contain more than one carboxylic acid group, fluoride, chloride, bromide, iodide, nitrite, nitrate, hydroxide, acetate, hydrogen sulfate, sulfate, C_1-C_{18}alkoxy sulfate, aromatic or aliphatic sulfonate, carbonate, hydrogen carbonate, perchlorate, chlorate, tetrafluoroborate, borate, phosphate, hydrogenphosphate, dihydrogenphosphate or mixtures thereof; and

p, q, and r are independently of each other a number from 0 to 10 and at least one is different from 0.

2. A compound according to claim 1 wherein in formula I or II $-L_1(Q^+X^-)$, $-L_2(Q^+X^-)$,and $-L_3(Q^+X^-)$, are a group  wherein

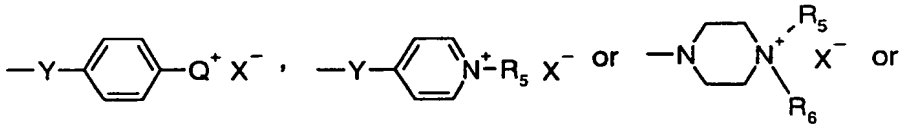
K_1 and K_2 are hydrogen, C_1-C_{18}alkyl, C_5-C_{12}cycloalkyl, phenyl or C_7-C_9phenylalkyl and

K_3 is a group $-COK_4$ or  where

K_4 is $-Y-[(CH_2-CH_2)-(CH_2)_s-N^+ R_5R_6 X^-]_t-CH_2-CH_2-(CH_2)_s-N^+ R_5R_6R_7 X^-$or

$-Y-CH_2-CHOH-CH_2-N^+R_5R_6X^--\{[(CH_2-CH_2)-(CH_2)_s-N^+X^-R_5R_6]_t-CH_2-CH_2-(CH_2)_s-N^+ R_5R_6R_7 X^-\}_u$,

where s is a number 0-8, t is a number 0-4 and u is 0 or 1 and Y is –O- or NR_9; or

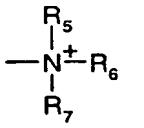
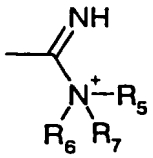
K_4 is a group 

Z is –C(O)- or a direct bond,

if Z is –C(O)-, K_5 has the same meaning as K_4,

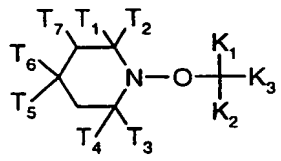
if Z is a direct bond, K_5 is $Y-CH_2-CHOH-CH_2-N^+ R_5R_6 X^--\{[(CH_2-CH_2)-(CH_2)_s-N^+ R_5R_6 X^-]_t-CH_2-CH_2-(CH_2)_s-N^+ R_5R_6R_7 X^-\}_u$, Q^+X^-, $-CH_2Q^+X^-$ or $-CHCH_3Q^+X^-$;

and Y is –O-, $-NR_9$ or a direct bond;

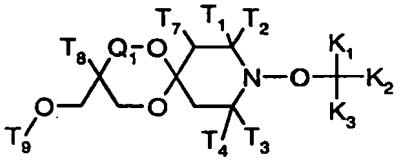
$Q^+ X^-$ is  X^- ,  X^-,and

the other substituents are as defined in claim 1.

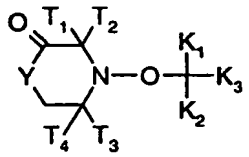
3. A compound according to claim 1 of formulae Ia, Ib, Ic, Id or Ie



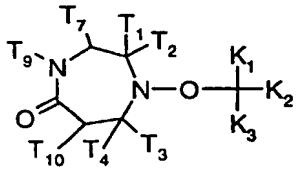
(Ia)



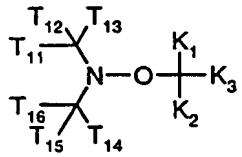
(Ib)



(Ic)



(Id)



(Ie)

wherein

Q_1 is a direct bond or a $-CH_2-$ group;

if Q_1 is a direct bond, T_8 is hydrogen,

if Q_1 is $-CH_2-$, T_8 is methyl or ethyl;

T_1, T_2, T_3 and T_4 are independently methyl or ethyl with the proviso that at least one is ethyl;

T_7 and T_{10} are independently hydrogen or methyl;

T_5 and T_6 are hydrogen or

T_5 and T_6 together are a group =O, =NOH, $=NO-T_9$ or

T_5 is hydrogen and T_6 is $-O-T_9$ or $-NR_9-T_9$ where T_9 is hydrogen, R_9 or $-C(O)-R_9$, where R_9 is hydrogen, C_1-C_{18}alkyl, C_3-C_{18}alkenyl, C_3-C_{18}alkinyl, phenyl, C_7-C_9phenylalkyl, which may be unsubstituted or substituted by one or more hydroxy, halogen or C_1-C_4alkoxy groups;

T_{11}, T_{12}, T_{13}, T_{14}, T_{15} and T_{16} independently are C_1-C_{18}alkyl, C_3-C_{18}alkenyl, C_3-C_{18}alkinyl, C_5-C_{12}cycloalkyl, phenyl or C_7-C_9phenylalkyl; or

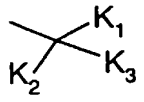
T_{11} is hydrogen and T_{12} is a group $-P(O)(OC_2H_5)_2$ and the others are as defined above;

or T_{11} and T_{14} are a group $-CH_2-O-T_9$ and the others are as defined above; or

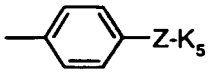
T_{16} is a group $-C(O)-Y-R_5$ and the others are as defined above; or

T_{11}, T_{12} and T_{13} are a group $-CH_2OH$;

$-L_3(Q^+X^-)$, is a group

 wherein

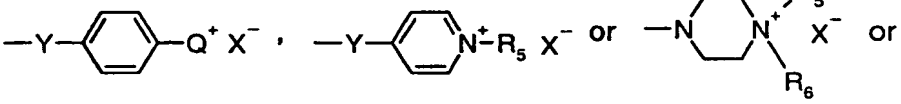
K_1 and K_2 are hydrogen, C_5-C_{12}cycloalkyl, phenyl or C_7-C_9phenylalkyl and

K_3 is a group $-COK_4$ or  where

K_4 is $Y-[(CH_2-CH_2)-(CH_2)_s-N^+ R_5R_6 X^-]_t-CH_2-CH_2-(CH_2)_s-N^+ R_5R_6R_7 X^-$or

$-Y-CH_2-CHOH-CH_2-N^+R_5R_6X^-\{[(CH_2-CH_2)-(CH_2)_s-N^+X^-R_5R_6]_t-CH_2-CH_2-(CH_2)_s-N^+ R_5R_6R_7 X^-\}_u$,

where s and t is a number 0-4 and u is 0 or 1; or

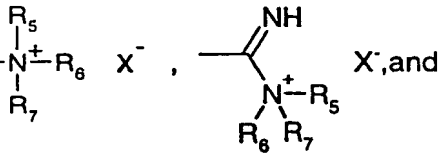
K_4 is a group 

Z is $-C(O)-$ or a direct bond,

if Z is $-C(O)-$ K_5 has the meaning of K_4,

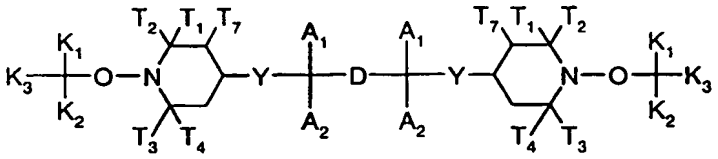
if Z is a direct bond, K_5 is $O-CH_2-CHOH-CH_2-N^+ R_5R_6 X^-\{[(CH_2-CH_2)-(CH_2)_s-N^+ R_5R_6 X^-]_t-CH_2-CH_2-(CH_2)_s-N^+ R_5R_6R_7 X^-\}_u$, Q^+X^-, $-CH_2Q^+X^-$ or $-CHCH_3Q^+X^-$;

Y is $-O-$ or $-NR_9$;

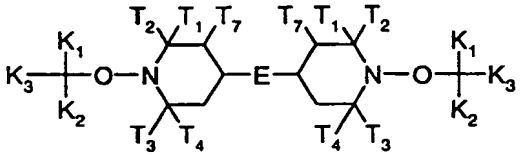
$Q^+ X^-$ is  X^-,and

X^- and the other substituents are as defined in claim 1.

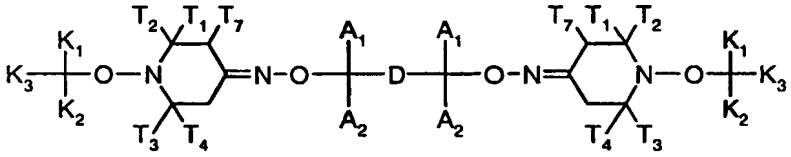
4. A compound according to claim 1 of formula IIa, IIb, IIc, IId or IIe



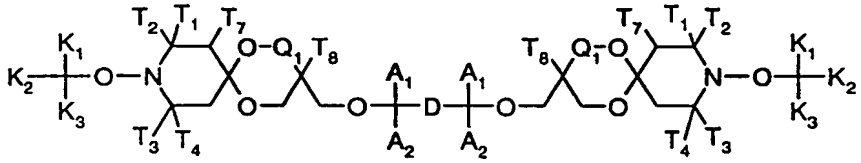
(IIa)



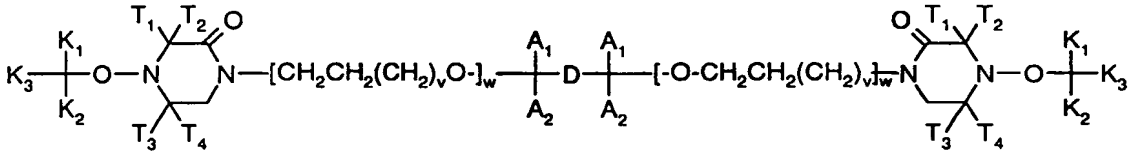
(IIb)



(IIc)



(IId)



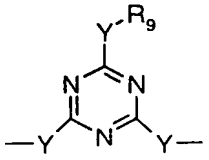
(IIe)

wherein

A_1 and A_2 are independently hydrogen or together with the carbon atom to which they are bonded form a carbonylgroup, -C(O)-;

D is a direct bond or C_1-C_{12}alkylene, C_1-C_{12}alkylene which is interrupted by one or more O, S, or NR_9 atoms, C_5-C_{12}cycloalkylene or phenylene;

E is a group $-NR_9$-$(CH_2)_x$-NR_9- where x is a number from 2 to 12 or a group



;

v is a number from 0 to 10 and w is 0 or 1;

Q_1 is a direct bond or a $-CH_2-$ group;

if Q_1 is a direct bond, T_8 is hydrogen,

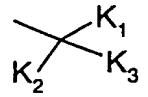
if Q_1 is $-CH_2-$, T_8 is hydrogen, methyl or ethyl;

Y is –O- or $-NR_9$;

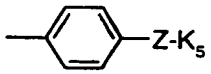
T_1, T_2, T_3 and T_4 are independently methyl or ethyl with the proviso that at least one is ethyl;

T_7 is hydrogen or methyl;

$-L_3(Q^+X^-)$, is a group

 wherein

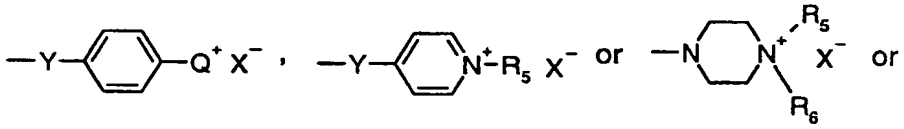
K_1 and K_2 are hydrogen, C_5-C_{12}cycloalkyl, phenyl or C_7-C_9phenylalkyl and

K_3 is a group $-COK_4$ or  where

K_4 is $Y-[(CH_2-CH_2)-(CH_2)_s-N^+ R_5R_6 X^-]_t-CH_2-CH_2-(CH_2)_s-N^+ R_5R_6R_7 X^-$or

$-Y-CH_2-CHOH-CH_2-N^+R_5R_6X^--\{[(CH_2-CH_2)-(CH_2)_s-N^+ R_5R_6 X^-]_t-CH_2-CH_2-(CH_2)_s-N^+R_5R_6R_7 X^-\}_u$,

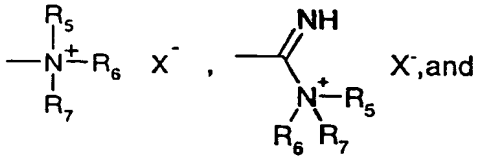
where s and t is a number 0-4 and u is 0 or 1; or

K_4 is a group 

Z is –C(O)- or a direct bond,

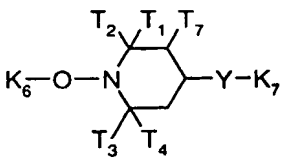
if Z is –C(O)- K_5 has the meaning of K_4,

if Z is a direct bond, K_5 is $O-CH_2-CHOH-CH_2-N^+ R_5R_6 X^--\{[(CH_2-CH_2)-(CH_2)_s-N^+ R_5R_6 X^-]_t-CH_2-CH_2-(CH_2)_s-N^+ R_5R_6R_7 X^-\}_u$, Q^+X^-, $-CH_2Q^+X^-$ or $-CHCH_3Q^+X^-$;

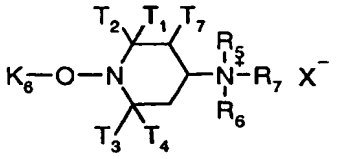
$Q^+ X^-$ is  X^-,and

X^- and the other substituents are as defined in claim 1.

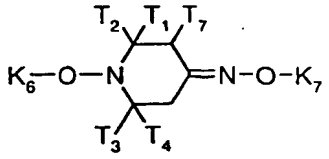
5. A compound according to claim 1 of formula IIIa, IIIb, IIIc, IIId or IIIe



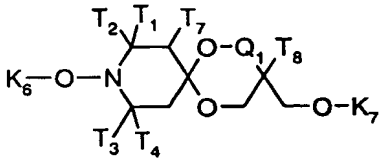
(IIIa)



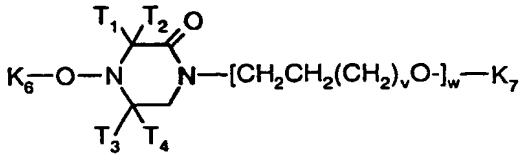
(IIIb)



(IIIc)



(IIId)



(IIIe)

T_1, T_2, T_3 and T_4 are independently methyl or ethyl with the proviso that at least one is ethyl;

T_7 is hydrogen or methyl;

Y is O or NR_9;

Q_1 is a direct bond or a $-CH_2-$ group;

if Q_1 is a direct bond, T_8 is hydrogen,

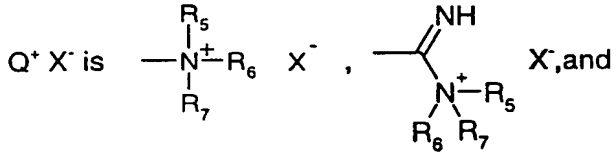
if Q_1 is $-CH_2-$, T_8 is methyl or ethyl;

v is a number from 0 to 10 and w is 0 or 1;

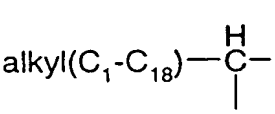
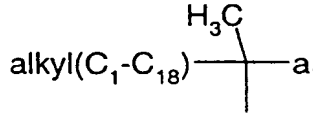
K_7 is a group $-CH_2-CHOH-CH_2-N^+ R_5R_6 X^-$-{[$(CH_2-CH_2)$-$(CH_2)_s$-$N^+ R_5R_6 X^-$]$_t$-$CH_2-CH_2$-$(CH_2)_s$-$N^+R_5R_6R_7 X^-$}$_u$,

where s and t is a number 0-4 and u is 0 or 1; or a group $-D_1-Q^+ X^-$ where

D_1 is C_1-C_{12}alkylene, C_1-C_{12}alkylene which is interrupted by one or more O, S, or NR_9 atoms, C_5-C_{12}cycloalkylene or phenylene;

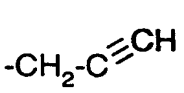
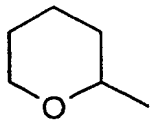
$Q^+ X^-$ is  X⁻,and

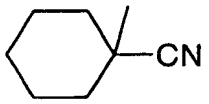
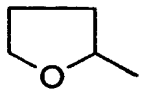
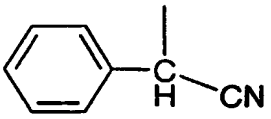
K_6 is is selected from the group consisting of

$-CH_2$-aryl,  , $-CH_2-CH_2$-aryl,  , (C_5-

C_6cycloalkyl)$_2$CCN, (C_1-C_{12}alkyl)$_2$CCN, $-CH_2CH=CH_2$, (C_1-C_{12})alkyl-CR_{30}-C(O)-(C_1-C_{12})alkyl,

(C_1-C_{12})alkyl-CR_{30}-C(O)-(C_6-C_{10})aryl, (C_1-C_{12})alkyl-CR_{30}-C(O)-(C_1-C_{12})alkoxy, (C_1-C_{12})alkyl-CR_{30}-C(O)-phenoxy, (C_1-C_{12})alkyl-CR_{30}-C(O)-N-di(C_1-C_{12})alkyl, (C_1-C_{12})alkyl-CR_{30}-CO-NH(C_1-C_{12})alkyl, (C_1-C_{12})alkyl-CR_{30}-CO-NH_2, $-CH_2CH=CH-CH_3$, $-CH_2-C(CH_3)=CH_2$,

$-CH_2-CH=CH$-phenyl,  , 3-cyclohexenyl, 3-cyclopentenyl,  ,

 ,  and  , wherein

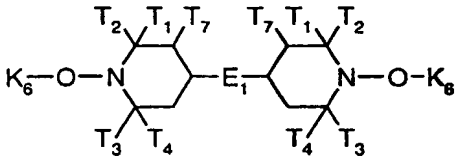
R_{30} is hydrogen or C_1-C_{12}alkyl;

the alkyl groups are unsubstituted or substituted with one or more -OH, -COOH or $-C(O)R_{30}$ groups; and

the aryl groups are phenyl or naphthyl which are unsubstituted or substituted with C_1-C_{12}alkyl, halogen, C_1-C_{12}alkoxy, C_1-C_{12}alkylcarbonyl, glycidyloxy, OH, -COOH or -COO(C_1-C_{12})alkyl and

X^- and the other substituents are as defined in claim 1.

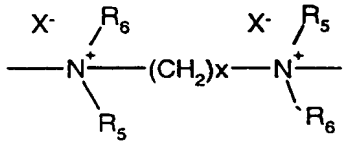
6. A compound according to formula IVa

 (IVa)

wherein

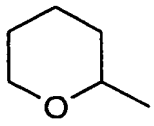
T_1, T_2, T_3 and T_4 are independently methyl or ethyl with the proviso that at least one is ethyl;

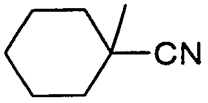
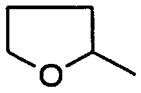
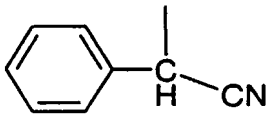
T_7 is hydrogen or methyl;

E_1 is  where x is a number from 2 to 12;

K_6 is is selected from the group consisting of

-CH_2-aryl, alkyl(C_1-C_{18})—C(H)—aryl, -CH_2-CH_2-aryl, alkyl(C_1-C_{18})—C(H_3C)—aryl, (C_5-C_6cycloalkyl)$_2$CCN, (C_1-C_{12}alkyl)$_2$CCN, -$CH_2CH=CH_2$, (C_1-C_{12})alkyl-CR_{30}-C(O)-(C_1-C_{12})alkyl, (C_1-C_{12})alkyl-CR_{30}-C(O)-(C_6-C_{10})aryl, (C_1-C_{12})alkyl-CR_{20}-C(O)-(C_1-C_{12})alkoxy, (C_1-C_{12})alkyl-CR_{30}-C(O)-phenoxy, (C_1-C_{12})alkyl-CR_{30}-C(O)-N-di(C_1-C_{12})alkyl, (C_1-C_{12})alkyl-CR_{30}-CO-NH(C_1-C_{12})alkyl, (C_1-C_{12})alkyl-CR_{30}-CO-NH_2, -$CH_2CH=CH-CH_3$, -CH_2-$C(CH_3)=CH_2$,

-CH_2-CH=CH-phenyl, -CH_2-C≡CH, 3-cyclohexenyl, 3-cyclopentenyl,  ,

 ,  , and  , wherein

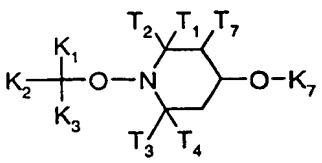
R_{30} is hydrogen or C_1-C_{12}alkyl;

the alkyl groups are unsubstituted or substituted with one or more -OH, -COOH or –C(O)R_{30} groups; and

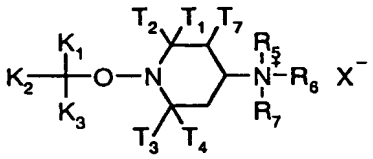
the aryl groups are phenyl or naphthyl which are unsubstituted or substituted with C_1-C_{12}alkyl, halogen, C_1-C_{12}alkoxy, C_1-C_{12}alkylcarbonyl, glycidyloxy, OH, -COOH or -COO(C_1-C_{12})alkyl and

X^- and the other substituents are as defined in claim 1.

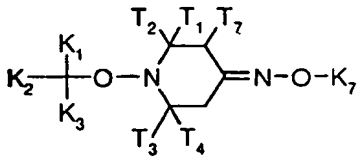
7. A compound according to claim 1 of formula Va, Vb, Vc, Vd or Ve



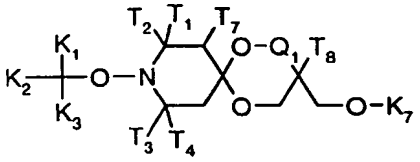
(Va)



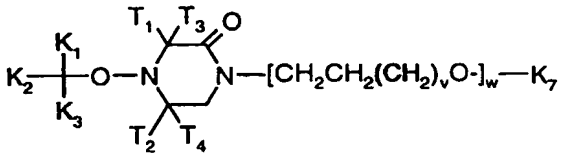
(Vb)



(Vc)



(Vd)



(Ve)

wherein

T_1, T_2, T_3 and T_4 are independently methyl or ethyl with the proviso that at least one is ethyl;

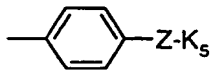
T_7 is hydrogen or methyl;

Q_1 is a direct bond or a $-CH_2-$ group;

if Q_1 is a direct bond, T_8 is hydrogen,

if Q_1 is $-CH_2-$, T_8 is methyl or ethyl;

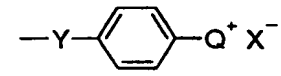
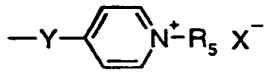
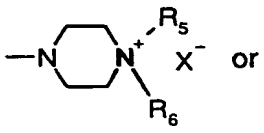
K_1 and K_2 are hydrogen, C_5-C_{12}cycloalkyl, phenyl or C_7-C_9phenylalkyl and

K_3 is a group $-COK_4$ or  where

K_4 is $Y\text{-}[(CH_2\text{-}CH_2)\text{-}(CH_2)_s\text{-}N^+ R_5R_6 X^-]_t\text{-}CH_2\text{-}CH_2\text{-}(CH_2)_s\text{-}N^+ R_5R_6R_7 X^-$ or

$-Y\text{-}CH_2\text{-}CHOH\text{-}CH_2\text{-}N^+R_5R_6X^-\text{-}\{[(CH_2\text{-}CH_2)\text{-}(CH_2)_s\text{-}N^+ R_5R_6 X^-]_t\text{-}CH_2\text{-}CH_2\text{-}(CH_2)_s\text{-}N^+R_5R_6R_7 X^-\}_u$,

where s and t is a number 0-4 and u is 0 or 1; or

K_4 is a group  ,  or  or

Z is –C(O)- or a direct bond,

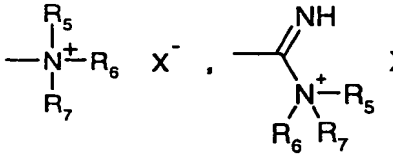
if Z is –C(O)- K_5 has the meaning of K_4,

if Z is a direct bond, K_5 is $O\text{-}CH_2\text{-}CHOH\text{-}CH_2\text{-}N^+ R_5R_6 X^-\text{-}\{[(CH_2\text{-}CH_2)\text{-}(CH_2)_s\text{-}N^+ R_5R_6 X^-]_t\text{-}CH_2\text{-}CH_2\text{-}(CH_2)_s\text{-}N^+ R_5R_6R_7 X^-\}_u$, Q^+X^-, $-CH_2Q^+X^-$ or $-CHCH_3Q^+X^-$;

K_7 is a group $-CH_2\text{-}CHOH\text{-}CH_2\text{-}N^+ R_5R_6 X^-\text{-}\{[(CH_2\text{-}CH_2)\text{-}(CH_2)_s\text{-}N^+ R_5R_6 X^-]_t\text{-}CH_2\text{-}CH_2\text{-}(CH_2)_s\text{-}N^+R_5R_6R_7 X^-\}_u$,

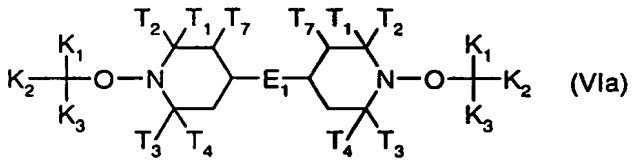
where s and t is a number 0-4 and u is 0 or 1; or a group $-D_1\text{-}\ Q^+ X^-$ where

D_1 is C_1-C_{12}alkylene, C_1-C_{12}alkylene which is interrupted by one or more O, S, or NR_9 atoms, C_5-C_{12}cycloalkylene or phenylene;

$Q^+ X^-$ is  X^-,and

X^- and the other substituents are as defined in claim 1.

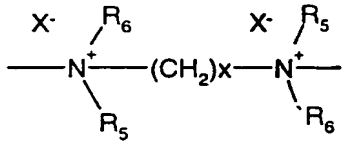
8. A compound according to claim 1 of formula VIa

 (VIa)

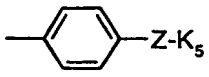
wherein

T_1, T_2, T_3 and T_4 are independently methyl or ethyl with the proviso that at least one is ethyl;

T_7 is hydrogen or methyl;

E_1 is  where x is a number from 2 to 12;

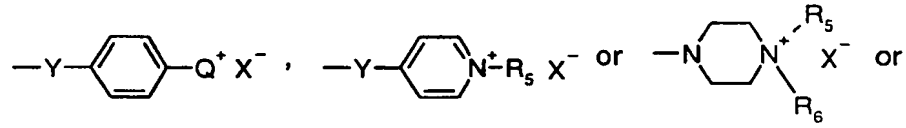
K_1 and K_2 are hydrogen, C_5-C_{12}cycloalkyl, phenyl or C_7-C_9phenylalkyl and

K_3 is a group $-COK_4$ or  where

K_4 is $Y\text{-}[(CH_2\text{-}CH_2)\text{-}(CH_2)_s\text{-}N^+ R_5R_6 X^-]_t\text{-}CH_2\text{-}CH_2\text{-}(CH_2)_s\text{-}N^+ R_5R_6R_7 X^-$or

$-Y\text{-}CH_2\text{-}CHOH\text{-}CH_2\text{-}N^+R_5R_6X^-\text{-}\{[(CH_2\text{-}CH_2)\text{-}(CH_2)_s\text{-}N^+ R_5R_6 X^-]_t\text{-}CH_2\text{-}CH_2\text{-}(CH_2)_s\text{-}N^+R_5R_6R_7 X^-\}_u$,

where s and t is a number 0-4 and u is 0 or 1; or

K_4 is a group 

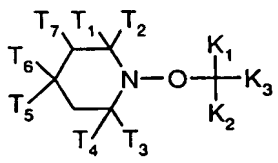
Z is –C(O)- or a direct bond,

if Z is –C(O)- K_5 has the meaning of K_4,

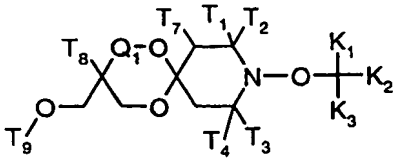
if Z is a direct bond, K_5 is $O\text{-}CH_2\text{-}CHOH\text{-}CH_2\text{-}N^+ R_5R_6 X^-\text{-}\{[(CH_2\text{-}CH_2)\text{-}(CH_2)_s\text{-}N^+ R_5R_6 X^-]_t\text{-}CH_2\text{-}CH_2\text{-}(CH_2)_s\text{-}N^+ R_5R_6R_7 X^-\}_u$, Q^+X^-, $-CH_2Q^+X^-$ or $-CHCH_3Q^+X^-$ and

X^- and the other substituents are as defined in claim 1.

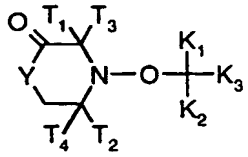
9. A compound according to claim 3 of formula Ia1, Ib1, Ic1, Id1 or Ie1



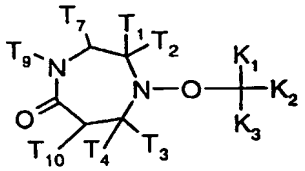
(Ia1)



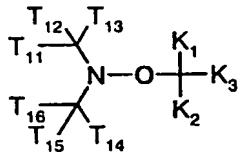
(Ib1)



(Ic1)



(Id1)



(Ie1)

wherein

Q_1 is a direct bond or CH_2 ;

T_1, T_3 are ethyl and T_2, T_4 are methyl;

T_7 is methyl or H;

if Q_1 is a direct bond, T_8 is H;

if Q_1 is CH_2, T_8 is methyl or ethyl;

T_{10} is H if T_7 is methyl or T_{10} is methyl if T_7 is H;

T_{11}, T_{12}, T_{13}, T_{14}, T_{15} and T_{16} are independently methyl or ethyl; or

T_{11} is H, T_{12} is isopropyl,T_{13} is phenyl and T_{14},T_{15},T_{16} are methyl; or

T_{11} is H, T_{12} is $-P(=O)(OC_2H_5)_2$, T_{13} is t-butyl and T_{14}, T_{15}, T_{16} are methyl; or

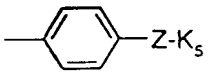
T_{11} and T_{14} are $-CH_2O-T_9$ and T_{12}, T_{15} are methyl or phenyl and T_{13}, T_{16} are methyl or ethyl; or

T_{11}, T_{12}, T_{13}, T_{14}, T_{15} are methyl and T_{16} is a group $-CO-O-R_9$ or $-CON(R_9)_2$; or

T_{11}, T_{12} and T_{13} are $-CH_2OH$, T_{14} is H, T_{15} is isopropyl and T_{16} phenyl;

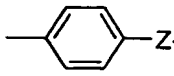
T_9 is hydrogen, R_9 or $-C(O)-R_9$, where R_9 is hydrogen, C_1-C_{18}alkyl, C_3-C_{18}alkenyl, C_3-C_{18}alkinyl, phenyl, C_7-C_9phenylalkyl;

K_1 is H, K_2 is methyl or ethyl and

K_3 is a group –CO-K4 or  ;

K_4 is $-Y-CH_2-CH_2-(CH_2)_s-N^+X^-R_5R_6R_7$ or;

-Y-CH_2-CHOH-CH_2-N-CH_2-CH_2-$(CH_2)_s$-$N^+X^-R_5R_6R_7$ where Y is O or NR_9 and s is a number from 0 to 2;

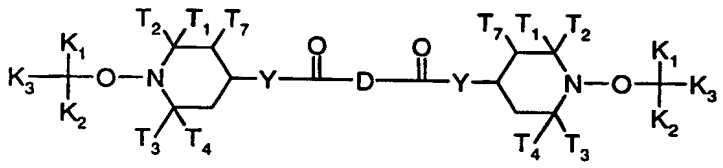
if K_3 is  , Z is –CO- or a direct bond;

if Z is –CO-, K_5 has the same meaning as K_4;

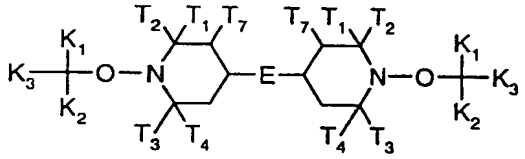
if Z is a direct bond, K_5 is a group -O-CH_2-CHOH-CH_2-N-CH_2-CH_2-$(CH_2)_s$-$N^+X^-R_5R_6R_7$ or $–CH_2N^+R_5R_6R_7$ X^- and

X^- and the other substituents are as defined in claim 1.

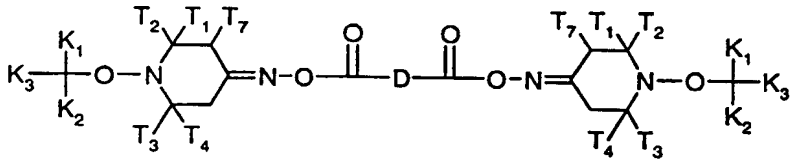
10. A compound according to claim 4 of formula IIa1, IIb1, IIc1 or IId1



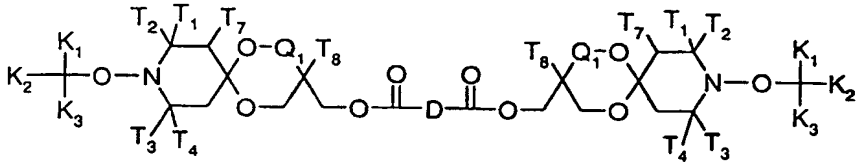
(IIa1)



(IIb1)



(IIc1)



(IId1)

wherein

Q_1 is a direct bond or CH_2 ;

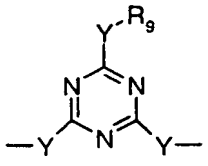
T_1, T_3 are ethyl and T_2, T_4 and T_7 are methyl;

if Q_1 is a direct bond, T_8 is H;

if Q_1 is CH_2, T_8 is methyl or ethyl;

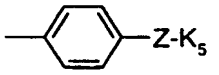
D is a direct bond, C_1-C_{12}alkylene or phenylene;

E is $-NR_5-(CH_2)_x-NR_5-$ where xis 2 to12 or a group



wherein Y is $=NR_9$

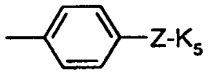
K_1 is H, K_2 is methyl or ethyl and

K_3 is a group $-CO-K_4$ or  ;

K_4 is $-Y-CH_2-CH_2-(CH_2)_s-N^+X^-R_5R_6R_7$ or;

$-Y-CH_2-CHOH-CH_2-N-CH_2-CH_2-(CH_2)_s-N^+X^-R_5R_6R_7$ where Y is O or NR_9 and s is a number from 0 to 2;

R_9 is hydrogen, C_1-C_{18}alkyl, C_3-C_{18}alkenyl, C_3-C_{18}alkinyl, phenyl, C_7-C_9phenylalkyl;

if K_3 is  , Z is –CO- or a direct bond;

if Z is –CO- K_5 has the same meaning as K_4;

if Z is a direct bond K_5 is a group $-O-CH_2-CHOH-CH_2-N-CH_2-CH_2-(CH_2)_s-N^+X^-R_5R_6R_7$

or $-CH_2N^+R_5R_6R_7\ X^-$;

and

X^- and the other substituents are as defined in claim 1.

11. A process for preparing a monomer/polymer clay nanocomposite dispersion comprising the steps of

A) providing a first aqueous dispersion of a natural or synthetic clay which can be partially intercalated and/or exfoliated and wherein said clay has an exchangeable cation;
adding a compound according to claim 1 to said dispersion and exchanging said cation at least partially;

B) adding to said dispersion at least one ethylenically unsaturated monomer and polymerizing at least a portion of said ethylenically unsaturated monomer.

12. A process according to claim 11 wherein the water phase of step A) is at least partially removed before performing step B).

13. A process according to claim 11 wherein the compound according to claim 1 is added in an amount of from 1% to 100% by weight, based on the weight of the clay.

14. A process according to claim 11 wherein the ethylenically unsaturated monomer or oligomer is selected from the group consisting of styrene, substituted styrene, conjugated dienes, acrolein, vinyl acetate, vinylpyrrolidone, vinylimidazole, maleic anhydride, (alkyl)acrylic acidanhydrides, (alkyl)acrylic acid salts, (alkyl)acrylic esters, (meth)acrylonitriles and (alkyl)acrylamides , vinyl halides or vinylidene halides or mixtures thereof.

15. A process according to claim 14 wherein the ethylenically unsaturated monomers are styrene, α-methyl styrene, p-methyl styrene or a compound of formula $CH_2=C(R_a)-(C=Z)-R_b$, wherein R_a is hydrogen or C_1-C_4alkyl, R_b is NH_2, $O^-(Me^+)$, glycidyl, unsubstituted C_1-C_{18}alkoxy, C_2-C_{100}alkoxy interrupted by at least one N and/or O atom, or hydroxy-substituted C_1-C_{18}alkoxy, unsubstituted C_1-C_{18}alkylamino, di(C_1-C_{18}alkyl)amino, hydroxy-substituted C_1-C_{18}alkylamino or hydroxy-substituted di(C_1-C_{18}alkyl)amino, $-O-CH_2-CH_2-N(CH_3)_2$ or $-O-CH_2-CH_2-N^+H(CH_3)_2$ An^-;
An^- is a anion of a monovalent organic or inorganic acid;
Me is a monovalent metal atom or the ammonium ion.
Z is oxygen or sulfur.

16. A process according to claim 11 wherein an acid containing unsaturated monomer is added, which is selected from the group consisting of methacrylic anhydride, maleic anhydride, itaconic anhydride, acrylic acid, methacrylic acid, itaconic acid, maleic acid, fumaric acid, acryloxypropionic acid, (meth)acryloxypropionic acid, styrene sulfonic acid, ethylmethacrylate-2-sulphonic acid, 2-acrylamido-2-methylpropane, sulphonic acid; phosphoethylmethacrylate; the corresponding salts of the acid containing monomer, and combinations thereof.

17. A process according to claim 11 wherein step B) is repeated with a second ethylenically unsaturated monomer which is different from the first one, leading to a block copolymer.

18. A process according to claim 11 wherein the natural or synthetic clay is selected from the group consisting of smectite, phyllosilicate, montmorillonite, saponite, beidellite, montronite,

hectorite, stevensite, vermiculite, kaolinite, hallosite, synthetic phyllosilicates, and combinations thereof.

19. A monomer/polymer clay nanocomposite dispersion obtainable by a process according to claim 11.

20. A composition comprising an aqueous dispersion of a natural or synthetic clay which is partially intercalated and/or exfoliated and a compound according to claim 1.

21. A composition according to claim 26, which contains additionally an ethylenically unsaturated monomer and/or a organic solvent.

22. Use of a compound of formula I or II for the polymerization of ethylenically unsaturated monomers.

23. Use of a monomer/polymer clay nanocomposite dispersion obtainable according to claim 11 as additive in paints, coatings, inks, adhesives, reactive diluents or in thermoplastic materials.